

11/13/17

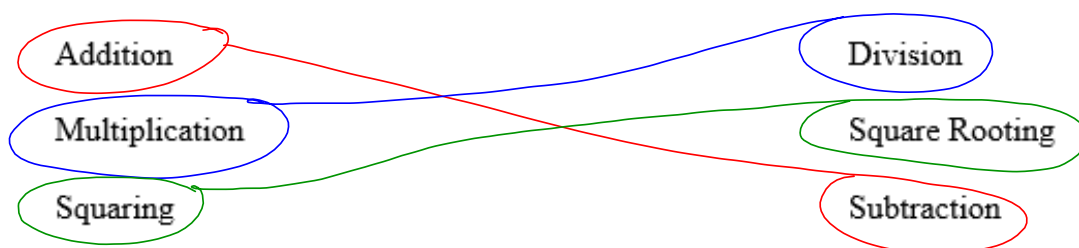
"The greatest accomplishment is not in never falling, but in rising again after you fall." -Vince Lombardi

HW: "2017 A2 CC1 Solving Radical Equations" Practice Exercises

AIM: How do we solve Radical Equations?

Warm Up: (on handout)

1) Match each of the following with its inverse:



2) Rewrite $\sqrt{3x}$ using fractional exponents.

$$(3x)^{\frac{1}{2}}$$

power
root

Evaluate



Pemdas



Solve

An equation that contains a **radical expression** is called a **radical equation**. We solve radical equations just like we solved other equations, by using Inverse Operations.

1) $\sqrt{x} = 4$

$$(\sqrt{x})^2 = (4)^2$$

$$x = 16 \checkmark$$

2) $\sqrt{x} - 3 = 5$

$$\begin{array}{r} \sqrt{x} - 3 = 5 \\ +3 \quad +3 \\ \hline (\sqrt{x})^2 = (8)^2 \end{array}$$

$$x = 64$$

Check:

$$\sqrt{64} - 3 = 5$$

$$8 - 3 = 5$$

$$5 = 5 \checkmark$$

$$3) (\sqrt{x+8})^2 = (3)^2$$

$$x+8 = 9$$

$$\begin{array}{r} -8 \quad -8 \\ \hline x = 1 \end{array}$$

Check:

$$\sqrt{1+8} = 3$$

$$\sqrt{9} = 3$$

$$3 = 3 \checkmark$$

$$4) \frac{2\sqrt{x-3}}{2} = \frac{6}{2}$$

$$(\sqrt{x-3})^2 = (3)^2$$

$$x-3 = 9$$

$$\begin{array}{r} +3 \quad +3 \\ \hline x = 12 \end{array}$$

Check

$$2\sqrt{12-3} = 6$$

$$2\sqrt{9} = 6$$

$$2 \cdot 3 = 6$$

$$6 = 6 \checkmark$$

$$5) (\sqrt{x-5})^2 = (-2)^2$$

$$x-5 = 4$$

$$\begin{array}{r} +5 \quad +5 \\ \hline x = 9 \end{array}$$

reject

Check:

$$\sqrt{9-5} = -2$$

$$\sqrt{4} = -2$$

$$2 = -2$$

⊗ This is why we Must Check!

$$6) (x+4)^2 = (\sqrt{x+10})^2$$

$$x^2 + 8x + 16 = x + 10$$

$$\begin{array}{r} -x \quad -x \\ \hline x^2 + 7x + 16 = 10 \end{array}$$

$$\begin{array}{r} -10 \quad -10 \\ \hline x^2 + 7x + 6 = 0 \end{array}$$

$$(x+6)(x+1) = 0$$

$$x = -6 \quad x = -1$$

reject

$$(x+4)(x+4)$$

$$x^2 + 4x + 4x + 16$$

$$x^2 + 8x + 16$$

